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Description

Data transfer method and arrangement

- 5 The invention relates to a data transfer method and to an appropriate arrangement for topping up a prepaid electronic credit over a data and telecommunication network.
- 10 Besides the Internet, telecommunications - in particular mobile telecommunications - today represent an area of rapid technical and economic development and a significant source of economic growth and new social developments. For a large number of the people in
- 15 industrial states, the mobile telephone ("mobile") is increasingly becoming a universal communication and information instrument and is also increasingly being used to access goods and services.
- 20 The dynamic development of mobile telecommunications has been significantly assisted in the last two to three years by the provision of tariffs on the basis of a prepaid credit (specifically in the form of "prepaid cards"). These tariffs are found to be attractive in
- 25 particular on account of their comprising no basic charge irrespective of use, their providing the user with a good cost control capability and their imposing no contractual obligation. For many users wanting to use newly appearing terminals immediately, this
- 30 contractual obligation is also a decisive drawback in view of the extremely dynamic development of technology and tariffs in this area. Prepaid credits appeal especially to those young and dynamic users who, on the other hand, still have relatively low incomes.
- 35 There are various methods for recharging prepaid credits which have also become established in practice. Besides purchasing a voucher, these include paying top-

up sums by credit card, transfer instruction, direct debit or standing order. These payment methods are established and are familiar to the great majority of users. However, they are largely based on stable bank accounts and in turn assume a certain creditworthiness, which means that significant advantages of the prepaid method are lost again for certain user groups at this point. Some of these payment methods also involve onerous, relatively long-lasting commitment of the customer to a particular, formalized mode of payment and can be changed only with a relatively high level of complexity.

The invention is therefore based on the object of providing an improved data transfer method and an improved arrangement of the type specified above which can be used to top up a prepaid account flexibly as required in a simple and nevertheless reliable way.

The method aspect of this object is achieved by a data transfer method having the features of claim 1, and the apparatus aspect of it is achieved by a data transfer arrangement having the features of claim 10.

The invention encompasses the fundamental concept of using an "electronic wallet" (eWallet) to top up a prepaid credit, i.e. an electronic settlement account which is set up in a data network and can be electronically connected directly to the prepaid account. It also encompasses the concept of designing this settlement account - which is also referred to below as eWallet account - such that it can be "controlled" from a terminal associated with the holder of the prepaid credit (or with a third party), so that topping-up of the prepaid credit can be controlled from the terminal in real time.

25 The proposed solution makes it possible to top up the prepaid account in real time, i.e. with immediate effect both for the holder and user and for the operator of the prepaid account. The electronic money is available to the operator immediately, so that the
30 latter does not need to make any advance concession. On the other hand, the holder also need not make any advance concession without having the prepaid credit available immediately in return (as in the case of a direct debit payment, for example).

The proposed solution can be implemented as an independent service and can be offered as such to the users of the prepaid credit and runs on a specific

application server. The latter is also referred to below as a recharge server in view of the specific function. The recharge server also performs the connection and checking operations crucial for performing the top-up operation. A crucial function in this context is the checking of authentication and/or account data which are transferred by the user performing the top-up when the transaction is initiated. This check is made on the basis of comparison data stored in the network or in the prepaid memory.

As a fundamental connection, the recharge server sets up a connection to the prepaid server in order to ascertain the presence of the prepaid credit to be topped up and the level of this credit. In addition, a connection is set up to the (at least one) eWallet server on which the settlement accounts are managed, in order to use this connection to perform the data transfer producing the electronic transfer operation.

Finally, the recharge server maintains the telecommunication and data link set up by the terminal of the user initiating the top-up operation for the purposes of data entry under menu guidance, until a completion acknowledgement is transmitted. Optionally, the recharge server also sets up a connection to a terminal associated with the holder of the prepaid credit (if he is not identical to the user initiating the top-up). In this context, the recharge server also runs the software for controlling communication with the respective terminals, in particular under visual or audible menu guidance.

The explanations above also reveal the fundamental functional components of an arrangement suitable for implementing the invention, which means that there is no need to describe the arrangement aspects of the

invention in detail again at this point. In particular, it is evident that, besides the fundamental network infrastructure - in particular a combined data and telecommunication network - it is necessary to have
5 servers on which the prepaid credit and the settlement accounts and the application software are managed, and the user needs to have a terminal for producing the transaction and for entering the relevant data.

10 A preferred embodiment is described in more detail below with reference to the single figure, the individual steps being symbolized in the figure by circles containing numerals. In contrast to the use of language above, in this case the user is referred to as
15 the "sender". A combined telecommunication and data network is simply referred to as "NETWORK" in this case. The settlement account of the user (sender) is referred to as the "electric wallet of the sender". The other names are in line with the explanations of terms
20 given further above. In the example, it is assumed that the sender and the receiver are not identical, that is to say that the electronic wallet of the sender is used to top up a prepaid credit of a different receiver.

25 The sequence of the method is as follows:

1. The sender uses his mobile radio terminal to set up a connection to the recharge server and authenticates himself. This means that the settlement
30 account of the sender is also clearly identifiable.
2. The recharge server uses menu guidance displayed on the sender's terminal display or else conveyed in audible form to request the sender to fill in the recharge order. Specifically, for this purpose, the
35 sender needs to specify at least the identity (e.g. MSISDN) of the receiver's prepaid account and the sum to be transferred. If the sender has a plurality of

accounts on the eWallet server, he needs to specify the identity (account number) of the eWallet required.

3. The recharge server checks with the eWallet server to determine whether the specified eWallet account of the service user exists and whether the specified amount is available in the account.

4. If this is the case, the sum is reserved (blocked).

5. The recharge server checks with the prepaid server to determine whether the specified prepaid account exists and whether the specified sum can be credited to the account.

6. If this is the case, the reserved sum is transferred from the eWallet account of the service user to a service operator account, which is likewise managed on the eWallet server, and at the same time the credit balance of the prepaid account is increased. This is done, in particular, by incrementing an appropriate counter. The money is transferred in real time.

7. The sender receives an acknowledgement about the successful transfer of money.

8. The receiver is optionally informed about receipt of the sum of money in his prepaid account.